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Editorial

This edition begins the ninth year of *Ice Breaker*, with the circle of contributors showing no signs of shrinking. I was hoping to include information about the jet for the Hobart to Casey Station airlink (known, but not announced by the Minister at the time of printing) and I am grateful for the article supplied by the Australian Government Antarctic Division (formerly AAD) in lieu of this long-awaited news. Gordon Bain's offer to provide a series of articles about early Australian Antarctic Aviation begins this edition, too.

The other special feature is the story of *Snow Petrel Down Under*, the Tasmanian film so popular at the Midwinter Festival.

Next year's big events include projects for the International Polar Year and the International Association of Antarctic Tourism Operators meetings in Hobart just after the Midwinter Festival in June. Any readers personally involved in any of the IPY or IAATO activities are welcome to send IB a story at any time.

Ice Breaker wishes all Antarctic community members a safe Christmas and Antarctic season and a successful 2007.

Anthea Wallhead

Cover Picture: Snow rollers on new Wilkins' Runway.
[photo: Annie Rushton, AGAD]

Back Page: Australian Antarctic aviation stamps provided by Gordon Bain

ICEBREAKER magazine is published independently by Malcolm Wallhead and Associates as a quarterly magazine covering Tasmanian Polar and Southern Ocean related topics.

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ICE BREAKER Special!

Australian Antarctic Aviation History by Gordon Bain. The first in a series tracing the importance of aviation in the exploration of Antarctica.

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SUBSCRIPTION RATES:

- 4 ISSUES PER YEAR
- AUSTRALIA-WIDE
including Postage & GST: \$A 28.00
- ALL OTHER COUNTRIES
including Airmail Postage: \$A 38.00
- Special rates for multiple & back copies.

ADVERTISING RATES:

Size (wxh) (cm)	b&w	colour
1/8 (8.5 x 6)	\$20	\$25
1/4 (8.5 x 12)	\$40	\$50
1/2 (18 x 12)	\$80	\$100
1 (18 x 25.5)	\$150	\$190

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ICE BREAKER
TASMANIA'S ANTARCTIC BUSINESS MAGAZINE

FROM THE PREMIER'S DESK



2006 has been an important year for the Antarctic sector in Tasmania.

The Tasmanian Government was very proud to host SCAR/COMNAP in Hobart during July. This was the largest Antarctic conference ever held in the southern hemisphere and meetings such as these can only provide excellent future economic opportunities for Tasmania. The challenge now is to capitalise on these opportunities.

With the Antarctic airlink commencing its trial flights in the next few months, we will soon enter an exciting new era in Antarctic logistics. The new state slogan, *Tasmania - Explore the Possibilities*, is most appropriate for activities such as the airlink. The airlink provides yet another reason for international organisations to select Hobart as a viable, cost-effective gateway or forward base for Antarctic operations.

Education and science are also very important aspects of the Tasmanian Antarctic sector. I am very pleased to see so many Tasmanian organisations involved in International Polar Year (IPY) activities.

IPY aims to initiate a new era in polar science through a series of internationally co-ordinated research projects. As part of IPY, Tasmania is playing host to a number of high-profile projects, including the Census of Antarctic Marine Life.

The Tasmanian Government is strongly represented on the IPY Australian Education, Outreach and Communication Committee, which is co-ordinating Australia's IPY educational and related activities.

We look forward to continuing to support programs within Tasmania that develop the Antarctic sector – both for the economic opportunities they bring and so we can learn more about this amazing part of our planet.

Hon Paul Lennon MHA

Premier and Minister for Economic Development

SOUTHERN FOCUS: Next year's Australian Weather Calendar from the Bureau of Meteorology includes four Antarctic photos demonstrating how polar regions influence the earth's weather. Calendars are available from BoM and for more details, see www.bom.gov.au/calendar.

PENGUIN MONITORS: Six solar-powered cameras, able to take up to a year's worth of photos, will be installed around Mawson Station this season, to record the activities of Adele penguins and their chicks. Previously micro-chipped adult birds will also be monitored to assess the availability of food such as krill.

ANCIENT FISH FIND: Fossil hunters in Queensland have discovered a preserved snout of a creature believed to be the ancestor of a protosphyraena, an ancient carnivore related to barracuda and swordfish, which existed in the Southern Ocean when Australia was joined to Antarctica. More common in North America and Europe, this specimen may be at least 20 million years older than previously discovered examples.

GLOBAL VOYAGERS: An attempt to break a 181-day record for solo, non-stop world circumnavigation is being made by Ken Gourlay, who left Beauty Point in his 12.5 metre sloop *Spirit Silver Edition* on November 7. To follow his progress: www.spiritsoloquest.com. British sailor, Tony Bullimore, begins his solo circumnavigation from Hobart in December, and will attempt to break a 71-day record aboard *Doha 2006*, a catamaran.

ICEBERG ALERT: Ships sailing south of New Zealand have been warned that over 100 icebergs have been sighted, some only 40 nautical miles from the Otago Peninsula. This is the furthest north that icebergs have been seen in 75 years. The bergs were spotted by the pilot of a NZ Air Force P3 Orion, on a routine maritime surveillance flight over the Southern Ocean. Both scientists and tourists are taking advantage of the proximity of the icebergs, and helicopters are making up to six flights a day to ferry out the former to take samples and latter for photographic opportunities. Tourists are paying over \$400 for a return flight. The bergs, which are breaking up as they move north, could have caused problems for Ken Gourlay (mentioned above) but he has successfully navigated past the danger area.

RHODES TO MACQUARIE: Recent Rhodes Scholarship winner, Rowan Trebilco, spent 14 months studying elephant seals and albatross on Macquarie and Heard Island, and will return to Macquarie Island a leader of an albatross conservation project team this season before leaving for Oxford next year.

FROM THE DESK OF WILL HODGMAN



Antarctic researchers playing key climate change role

The issue of climate change has recently hit the headlines in Tasmania, around Australia and, indeed, globally with the release of several illuminating publications, including the Stern Report in the United Kingdom.

There is no doubt that climate change is one of the most significant issues facing Tasmania, and the world, and it is important that all levels of government seek to understand and address the effects of climate change.

The Antarctic, as the world's most untouched continent, is playing a key role in helping us to understand why climate change is occurring. One group undertaking extremely valuable work in this field is the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC).

The ACE CRC, established by the Australian Government in 2003, has been actively examining the Antarctic and Southern Ocean climate, researching phenomena such as rising sea levels and the melting of the polar ice-caps (which has recently been perhaps more evident than ever with a giant Antarctic iceberg passing by the coast of the South Island of New Zealand). Further, the ACE CRC researchers are investigating the impact that climate change is having upon marine life in the Southern Ocean and the ecosystem of the Antarctic generally.

It is vital that all levels of government take note of this valuable ongoing work of the ACE CRC, helping us understand what is occurring now, what may happen in the future and how we can best plan for these changes.

It is irrefutable that our climate is changing, none more so than in the Antarctic region and the Southern Ocean. I encourage all in the community to take a keen interest in this major issue.

Will Hodgman

Leader of the Tasmanian Liberals

CCAMLR ANNIVERSARY

CCAMLR – XXV was held in Hobart, in the new Commission headquarters, from 23 October to 3 November 2006. All twenty-four member states were represented together with a large number of observers from Acceding States, non-Contracting Parties, intergovernmental organisations and non-governmental organisations. In all, some 226 delegates participated in this year's round of meetings.

As this was the twenty-fifth Commission meeting, each delegate received a commemorative CCAMLR stamp issued by Australia Post. Also, as part of the opening ceremony, His Excellency, the Governor of Tasmania unveiled an Honour Board acknowledging all previous and current Chairs of the Commission and Scientific

Committee and Executive Secretaries.

A twenty-fifth Anniversary Dinner was held on Saturday, 28th November at the Hobart Function Centre.

This meeting concluded the Chairmanship of Professor Seo-hang Lee from Korea. The next two meetings will be chaired by a representative of Namibia.



By the board (L-R): The Governor of Tasmania, William Cox, Professor Seo-hang Lee, Professor Edith Fanta and Denzil Miller.

PEG PUTT'S MESSAGE



In my last contribution to Ice Breaker magazine I highlighted the impacts of feral rabbits on the delicate ecosystems and seabird populations of Macquarie Island. Since then conservation organisations have ramped up their campaigns to turn this problem around by calling on the Federal Minister for the Environment, Senator Ian Campbell, and Tasmanian Minister Paula Wreidt to show commitment by agreeing to the existing plan to eradicate both feral rabbits and rodents, and funding it. The plan has already been developed; it just needs to be implemented - urgently!

I urge concerned readers to contact the Ministers with their concern. The Tasmanian National Parks Association has published a handy postcard on the issue that you can fill-in and send to Minister Campbell. More information is available from their website, www.tnpa.asn.au/macquarie.

The seabirds of Macquarie Island face a double whammy, as they are often the "by-catch" of illegal, unreported and unregulated (IUU) long-line fishing in the Southern Ocean. IUU again gained attention at the recent Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) meeting in Hobart. The meeting made progress towards developing measures to oblige all member-countries to investigate and enforce penalties for illegal fishing activities undertaken by nationals of their respective country. When this is finally agreed as a binding conservation measure, hopefully next year, it will get around the practice of hiding behind flags of convenience.

This step should help to protect Southern Ocean fisheries' species within Exclusive Economic Zones (EEZs), including the Patagonian toothfish that has been hit hard around Heard and McDonald Islands due to illegal fishing. Most disappointing was the failure to make progress towards controlling IUU fishing in high seas areas of the Southern Ocean, still essentially a free for all.

Hot on the heels of CCAMLR came negotiations for an agreement to establish a new regional fisheries management organisation for the South Pacific. Russia and the European Community were flies in the ointment in this effort to cap existing levels of trawling and ban destructive bottom trawling. Likened to mining, trawlers decimate populations in one area, and when the yield drops too low, they move on. The fishing practices of European trawlers have helped to destroy North Atlantic fisheries, and they now have their eyes on unregulated areas in other parts of the world's oceans, including areas of the Southern Ocean between Australia and Antarctica and subantarctic waters between Chile and Australia.

According to the International Union for the Conservation of Nature and Natural Resources (IUCN), "*Over half of the global fish stocks are already fully exploited, and 25 percent are overexploited, depleted or recovering from depletion and in 75% of the high seas, deep sea fisheries are totally unregulated*". It is clear that a cap on trawling and a ban on bottom trawling are measures that are needed before marine ecosystems face collapse and fisheries can no longer provide a livelihood for anyone, including the fish.

Peg Putt MHA

Tasmanian Greens Opposition Leader

POACHING FINES: Two Spanish fishermen have been fined \$118,000 for illegally catching Patagonian toothfish in protected waters near Macquarie Island. The ship's master and fishing master of the Cambodian flagged *FV Taruman* were found guilty in the NSW District Court in September, over a year after the ship was captured by armed Australian Customs officers. However, because the UN Convention on the Law of the Sea does not allow for a term of imprisonment, the pair returned to Uruguay. Their ship remains moored in Hobart until Fisheries and Customs decide its future, as there is always a risk of it being used for illegal fishing again.

WHALE CONNECTIONS: Iceland has joined Japan and Norway to resume whaling this year after a 16-year break. Thirty Minke and nine fin whales, both on the endangered species list, will be caught and the meat exported to Japan. Norway's plan to catch 1,089 Minkes was reduced to half, due to high fuel prices and Japan expects to catch 850 Minkes and 10 fin whales.

SOUTHERN OCEAN GRANTS: The Australian Centre for Applied Marine Mammal Science, at the Australian Government Antarctic Division, advertised the availability of grants for marine research in October this year. Proposals were being sought regarding marine management, with the focus on whales, dolphins, seals and dugongs.

SEA VIEWS: According to Penny Whitton, leader of the CSIRO's Climate Change Impact and Risk Group, the increases in sea level are more due to thermal expansion – the volume of water in the ocean increasing as the temperature rises, rather than melting ice.

TPN CHAIRMAN'S MESSAGE



Around 7-8 years ago, the TPN underwent a rigorous strategic planning exercise under the guidance of Tony Ibbott to determine an appropriate set of future goals for pursuit. These goals then became the focus for the Network's business planning and budget allocations for the ensuing years. These have been pursued both mechanistically and intuitively with the result that, as at the end of 2006, most have been achieved. For example:

- Antarctic Airlink adopted by the Federal Government.
- Hobart adopted as the point of embarkation and disembarkation even though Albany made a serious challenge to this aspect which was until then taken pretty much as a 'given'.
- The Midwinter Festival has become a fixture – one of the key planks of the adopted strategy of 'awakening Joe Citizen' to the reality of Hobart's connection to Antarctic, Sub-Antarctic and the Southern Oceans, from heritage, geographic and logistical point of views.
- Linkage to UTas/IASOS courses in Antarctic and Southern Ocean studies.
- Participation in preserving the COMNAP Secretariat.
- Participation in preserving the CRC at UTas.
- There are others.

In each of these cases the TPN has played a part along with various institutional members and in particular Sir Guy Green's 'Governor's Forums'. This coordinated, combined effort has proved to be very successful.

The Tasmanian Government through Department of Economic Development and its predecessors has provided strong support to the TPN both in financial and material terms. The Secretariat has been provided by Antarctic Tasmania/Office of Antarctic Affairs since the Network's inception under the guidance of Tony Hughson, Bill Bleathman, Greg Johannes and Ben Galbraith. In return, the Tasmanian Government has enjoyed having a very active and successful Network, which it has on several occasions showcased to other industry groups as 'the way to go'.

Whilst the work begun following the Ibbott session is not finished, it is largely achieved. This perhaps leaves the TPN at peril of 'coasting along' without the previous focus and without too much discomfort. We have noted a fall off in commercial members' participation in the Network's affairs over the past year or so. This is not good and as a result, I have exercised the Chairman's discretion to bring about a review of where the TPN is now and where we should be in the years ahead.

To get the ball rolling, I recently invited a representative group of TPN commercial members to share their views on the TPN with each other and I have also spoken to others individually. On 13/11/06, I also met with the AAD Executive at Tony Press' invitation to discuss their perceptions of the TPN and its roles in the past, current times and the future.

From these informal discussions, I gleaned a broad picture of the current position and took that to a special TPN Executive meeting on 20th November ahead of raising the matter at the TPN meeting scheduled for 8th December. The Executive adopted a recommendation of scheduling a strategic planning session in February 2007 to develop a new set of objectives and strategies to replace those developed 7-8 years ago and now achieved.

I urge all Members to support this process early next year, as it will become the key to our future activities and efforts. It is important that we produce value for money and effort spent for our State and to do this we must have relevant and focused plans.

Finally, I extend the compliments of the Season to all Members and their families and hope that you all find 2007 to be both challenging and rewarding in all respects.

Bill Lawson.
TPN Chairman.

ATTENTION ALL TASMANIAN POLAR NETWORK MEMBERS:

A Strategic Planning Session to develop

NEW objectives for the TPN

will be held in **February 2007.**

START THINKING NOW!

AUSTRALIAN ANTARCTIC AVIATION HISTORY

*This is the first of at least two articles about some little known events in Australia's aviation history. Based around talks on the subject given by **Gordon Bain** in the late 1990s, the articles are aimed to coincide with the December demonstration flights in the Australia-Antarctica continental airlink as part of the comprehensive air transport system in Australia's sector of Antarctica. Although Australia has long depended on ships and shipping for its Antarctic activities, aviation has been a part of those activities almost from the beginning.*

An aerial view of Antarctica

On 4 February 1902 Tasmanian Physicist Louis Bernacchi, a member of Scott's first Antarctic expedition, witnessed the first attempt at aerial survey in Antarctica. This was the day that Robert Scott and Ernest Shackleton went aloft in separate flights in a hydrogen balloon. The balloon, nicknamed *Eva*, nearly came to grief when Scott chucked out rather too many ballast sandbags, and the craft strained seriously on its ground tether. Despite its limited success with views only across the great ice barrier of the Ross Ice Shelf, and an unfortunate irreparable leak, the event marked the first foray into the skies above Antarctica. It was nearly two years later and before Scott's *Discovery* expedition returned to Portsmouth, man achieved powered flight.

The flight, which launched aviation

At Kitty Hawk, North Carolina on 17 December 1903, the *Wright Flyer* became the first powered, heavier-than-air machine to achieve controlled, sustained flight with a pilot aboard. It flew forward without losing speed and landed at a point as high as that from which it started – criteria used to clearly demonstrate flight. With Orville Wright as pilot, the airplane took off from a launching rail and flew for 12 seconds and a distance of 37 metres. This was truly the birth of aviation.

An aircraft without wings

It was to be a scant eight years before powered flight nearly came to Antarctica. The event was the Australasian Antarctic Expedition (AAE), the leader South Australian Douglas Mawson.

With support and encouragement from Robert Scott's wife Kathleen and contact with a Lt Hugh Wilkins of Vickers Ltd, Mawson managed to negotiate the purchase of a plane - the French designed REP monoplane. The D-type aircraft was a typical 'strings and wire' contraption of the era with an open cockpit, exposed crisscross struts, a five-cylinder engine developing 60HP and a big propeller. With a 47-foot wingspan, it could carry the pilot and one passenger in its 36-foot length. It came with one spare ski undercarriage and a bill for £955 4s 8d! The P&O Company kindly transported it to Australia for half the usual freight rate. In late 1916, long after the expedition was over, the bill for the aircraft was waived by Sir Trevor Dawson, Director of Vickers.



AAE's Vickers REP at Cape Denison

AUSTRALIAN ANTARCTIC AVIATION HISTORY

On 6 October 1911 at the Cheltenham Racecourse in Adelaide, Lt Wilkins took the aircraft aloft for its second test flight. Oh dear, a combination of a petrol leak from the day before, an unaccounted shuddering in the airframe and some turbulence at 200 ft caused a crash landing - both wings damaged, one cylinder broken, the nose bent up, the tail in half. Wilkins and passenger Frank Wild had relatively minor injuries, but this was our first Antarctic related aviation accident!

Undeterred, Mawson decided to take the machine to Antarctica without its wings and use it as a sort of an aerial tractor. In early December 1912 on an outing to the west of the base it developed terminal engine trouble and a problem with the airframe. Parts of the aircraft were scattered around Commonwealth Bay but the propeller was retrieved by Charlie Sandell and eventually placed in the Maritime Museum in Esperance, WA.

World War 1 as a catalyst

WW1 saw the emergence of aircraft as a major force and aviation was no longer seen as some passing fad. A scramble started to use the new technology in exploration particularly in Polar Regions. After the air conquest of Alaska, the Arctic and the North Pole, eyes turned to Antarctica.

The first flight

On 16 November 1928 another South Australian, Sir Hubert Wilkins, claimed the honour of first flight in Antarctica during the first expedition by newspaper magnate William Randolph Hearst. Wilkins' flight was in a Lockheed Vega, a single engine, high wing monoplane with pilot Carl Ben Eielson lifting from a rough airstrip on Deception Island on the Antarctic Peninsula for a 20 minute flight above the southern ice. More flights followed - Antarctic aviation was born.

In late 1929 Wilkins was with the second Hearst Expedition using the wheeled Lockheed Vega once more.



BANZARE's Gypsy Moth being readied for a flight

BANZARE

Fifteen years after the AAE, Mawson finally managed to get into the air above Antarctica. This was in a DeHavilland Gypsy Moth DH60G float equipped biplane (VH-ULD) on the British Australian and New Zealand Antarctic Research Expedition (BANZARE) on Scott's ship *Discovery*. The first flight on 31 December 1929 had aviators Stuart Campbell and Eric Douglas on board, marking the beginning of Australia's aerial exploration of the continent. Mawson himself took to the air for the first time on 5 January 1930 with Eric Douglas flying the aircraft. On 25 January, Mawson flying with Stuart Campbell, later to be the first leader of ANARE, made the second territorial claim of the expedition dropping the flag on the ice in the vicinity of Proclamation Island.

The same aircraft was used on the second half of the BANZARE in 1930-31.

AUSTRALIAN ANTARCTIC AVIATION HISTORY

Another South Australian

Enter from stage left another South Australian, John Rymill. A trained pilot and an Arctic veteran, he conceived and led the highly successful British Graham Land Expedition (BGLE) 1934-37. His ship the *Penola* was named after his birthplace and the expedition carried a DeHavilland Fox Moth – a ski and float equipped biplane (G-ACRU) which also carried a survey camera and radio. BGLE's first flight with W E Hampton in command was on 27 January 1935. Rymill was second pilot, Surveyor and Leader of the expedition and G-ACRU accumulated 110 flying hours.



BGLE's Fox Moth at Marguerite Bay base for their second winter

Australia in the search for Lincoln Ellsworth

In late 1935 the American millionaire Lincoln Ellsworth was embarked on the third stage of his ambitious attempt to fly across the Antarctic. Flying a Northrop Gamma 2B the *Polar Star*, pilot Herbert Hollick-Kenyon and Ellsworth took off from Dundee Island on the Antarctic peninsula to fly to the Bay of Whales, Ross Sea, but vanished.

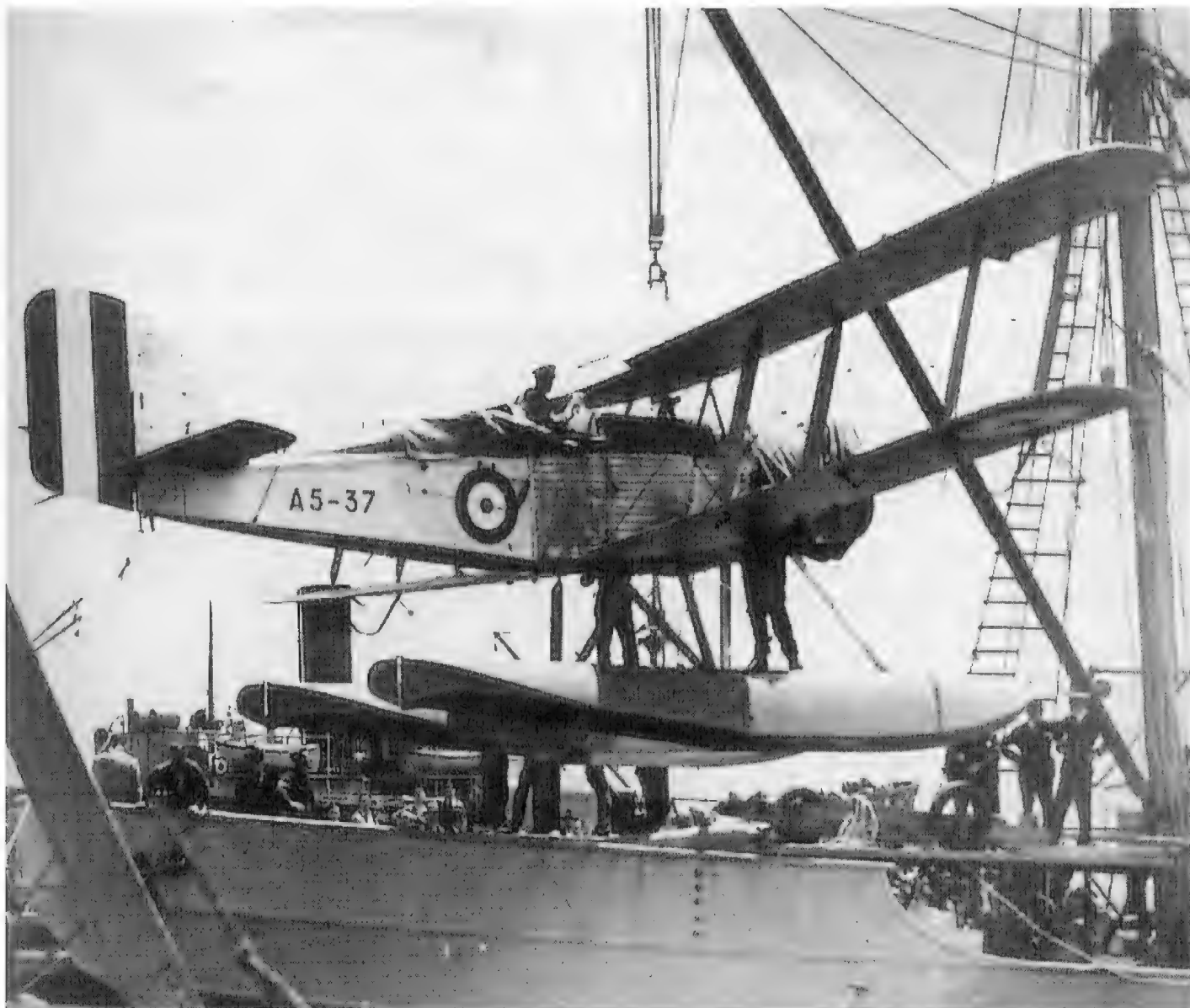
Britain and Australia with New Zealand support responded to the emergency by making the Royal aircraft and other equipment available for the search. RAAF pilots Eric Douglas and Alister Murdoch were detailed to accompany the rescue and they had with them two RAAF float fitted biplanes – a DeHavilland 60G Gipsy Moth (A7-55) and a Westland Wapiti (A5-37), both equipped with radio. Douglas piloting the Moth and with Murdoch as observer, discovered the missing airmen at Richard Byrd's shut-down base Little America at the Bay of Whales, as well as the downed Northrop Gamma some miles away.

Continued>

AUSTRALIAN ANTARCTIC AVIATION HISTORY

Ellsworth's support ship the *Wyatt Earp* with Wilkins aboard arrived at the scene five days later. There was some controversy about the whole rescue operation; in his book *Beyond Horizons* (1938) Ellsworth penned the memorable line "At no time were we lost, in the sense that we did not have a general idea of where we were or were unable to proceed."

The Wapiti was not used on this mission, but it was there in case its greater carrying capacity was needed.



RAAF Westland Wapiti being loaded on *Discovery II* for the Ellsworth SAR

And Wilkins again

Wilkins joined Lincoln Ellsworth's 4th expedition in 1938/39. On this occasion they took a two-seater Aeronca C-3 floatplane for use in scouting and a larger wheeled low-wing Northrop Delta an all-metal, radio equipped craft. Flights operated in the Prydz Bay region from the *Wyatt Earp* later to be used in the first year of ANARE. Wilkins re-asserted Australian claims in this area in the face of Ellsworth having a brief to make claims by the USA.

Next time: *World War II* saw the cessation of Antarctic exploration, but things were to be very different after the war. [See back cover for Australian Antarctic Aviation Stamps, also supplied by Gordon Bain]

Details of the new jet for the Hobart to Casey airlink should be announced on December 12, 2006.

ANTARCTIC TASMANIA



It has been a busy year and it is worth reflecting upon some of the milestones that have been achieved by members of the Tasmanian Antarctic sector. These include the following highlights:

- The establishment of the *Islands to Ice* permanent Antarctic display in March at the Tasmanian Museum and Art Gallery (TMAG).
- The international SCAR/COMNAP conference was held in July and it brought 950 delegates to Hobart.
- The International Antarctic Institute (IAI) was also established in July and the University of Tasmania announced that its first IAI Masters Degree would commence in 2008.
- In September, the Minister for the Environment and Heritage, Senator Ian Campbell, confirmed the establishment of the Australian Centre for Applied Marine Mammal Science (ACAMMS). The Centre will be located at the Australian Government Antarctic Division (AGAD) and funded to \$2.5 million over four years.
- The Tasmanian and international Antarctic community also celebrated the 25th meeting of CCAMLR in October/November.
- In addition, we celebrated the 25th year of the AGAD being located in Hobart (having relocated from Melbourne in the early 1980s).
- Adding to these highlights, the French/Italian Antarctic Concordia Station opened for operation with the first wintering party settled in for the 2006 winter.

Looking ahead, the 2006/07 summer season will see first Hobart-Antarctica test flights. The Wilkins ice runway near Casey Station is near completion in preparation for initial demonstration flights this month. When the service is in operation, Antarctica will be five hours' flying away. Construction of the four-kilometer 'blue ice' runway – the longest runway in Australia – has been under way since last year. The runway honours Sir Hubert Wilkins, the pioneer Australian Antarctic aviator and explorer. The Wilkins runway is part of the Australian Government's \$46.3 million intercontinental Antarctic airlink commitment.

We are also looking forward to the launch of the International Polar Year (IPY) in March 2007. In addition, we will see the Midwinter Festival staged again in June 2007, and it will be directly followed by the annual general meeting of the International Association of Antarctica Tour Operators (IAATO) in Hobart. Adding to these events, the National Oceans Office Branch of the Environment and Heritage will be relocating from Hobart's CBD to a new purpose built building. It will be co-located at Kingston with the AGAD.

All of us from the Antarctic Tasmania team wish you the very best for the Christmas season. We also thank you for the efforts, cooperation and generosity you have provided to growing the size and diversity of the Tasmanian Antarctic sector over the past 12 months.

Ben Galbraith
General Manager

GLOBAL RIPPLE

According to researchers in USA, a violent storm in the Gulf of Alaska last October produced waves large enough to travel over 13,000 km to break up the B15A iceberg off Antarctica six days later. Seismic records from instruments on the iceberg detected movements before the iceberg broke up, and weather records indicated the most likely source was the Alaskan storm.

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ANTARCTIC AIR LINK NEWS

The blue ice of Wilkins Runway, 70 km southeast of Casey station, is being capped by 40 ha of snow pavement this austral summer, to support a series of demonstration flights of Australia's new intercontinental aircraft.

A team of eight, including plant operators, diesel mechanics, a surveyor, an engineer and a camp hand call Wilkins home. At this stage Wilkins is considered to be a field camp and several trips per month are being undertaken by Hagglund on the 3.5 hour traverse route to Casey to keep the camp functioning – to deposit waste; rotate team members; collect fuel and supplies; and to enjoy a change of scenery.

Back in Hobart, local manufacturers, Taylor Bros, have put the finishing touches on some new 'digs' for the crew. Awaiting delivery in December, the new ablutions van and mess van will replace some very well loved containers (up to 25 years old) that have served their purpose. Although the team will still need to be fully clothed to move between the living, mess and new ablutions van, it is hoped that the new and improved vans will help improve the quality of camp life.

Wilkins site facts:

Wilkins runway is approx 70 km SE of Casey Station situated on a plateau in the upper Peterson Glacier.

Blue ice thickness at the runway site is approximately 700 m.

A network of automatic weather stations near the runway records and reports data to the Bureau of Meteorology.

The Wilkins annual mean temperature is approximately -14°C.

Winds form sastrugi and reshape the surrounding landscape and runway surface conditions.

Weather conditions at Wilkins differ from the coastal climate of Casey Station.

Optimal weather conditions for construction is between October and February (summer)



Wilkins runway facts:

Length 4000 metres

Width 100 metres

Western Threshold 700 m ASL

Eastern Threshold 760 m ASL

Overall Longitudinal slope 1.72%

Cross Slope 0.220 to 0.984%

Glacial movement 12 m/year to South West

Blue Ice thickness approx 700 m

Wilkins annual mean temperature -14°C

Wilkins Runway, Western Threshold –

@ Chainage 0 metres

South	66° 41'	21.72313"
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East	111° 29'	08.90076"
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Wilkins Runway, Eastern Threshold –

@ Chainage 3450 metres

South	66° 41'	30.43520"
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East	111° 33'	49.31356"
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Wilkins 2006/07 team lead by Matt Filipowski, third from the left.

A BUDGET SUMMER CRUISE TO THE POLE

*Ben Tucker's 10-metre home-built Kettering yacht **Snow Petrel** caused a stir last summer by sailing south to Antarctica on a family cruise with his father and youngest brother Matt. Jon Tucker outlines the trip.*

Ben's concept was simple – two weeks down, two weeks there, and two weeks back. However it was no spur-of-the-moment cruise. Two years had already been poured into readying Snow Petrel for an unspecified ice trip. As well as securing appropriate permits from Australian and French authorities, a staggering number of modifications and preparations were necessary for the voyage into the furious fifties and ice-filled sixties. At subzero sea temperatures, normal diesel waxes out and water tanks freeze solid. Internal plumbing freezes solid and bronze propellers become as brittle as glass. Brash ice can tear off underwater fittings and bergy bits have the potential to open the 3mm steel hull like a can-opener. Insulation and diesel heating took priority over radar, so on Ben's shoestring budget the hoped-for radar simply didn't happen (a good look-out inside the Perspex dome would have to do).

Although the budget was low, we were extremely lucky to have so many good friends offering to supplement our gumboots and rubber gloves with good Antarctic-proof gear. Ben's \$60 laptop/\$100 HF radio combination worked brilliantly but we were grateful for the loan of a satphone from Don & Margie MacIntyre as backup.

Sailing 1500 miles due south from Tasmania entails crossing the westerly belt at right angles. Potentially fast in a moderate seastate, this can involve dangerous beam seas in sustained gales. We were glad to be equipped with two drogues, and despite sailing through two Low centres (one at a scary 959 mb) we were knocked down only once without significant damage.

Of greater concern was the pack ice; a belt - like the barrier reef - up to 30 miles thick located as far as 80 miles from the Antarctic mainland. We had expected rafts of pancake ice and were staggered to find a grinding jumble of car and house sized bergy bits stretching as far as the eye could see, blocking our progress nearly 100 miles offshore. Random open leads, like paths in a lethal maze, drew us in, closing behind us in a rising northerly breeze as new possible leads opened. It took us twenty hours of working our way through promising leads, often backtracking for several hours, before we elatedly sailed out into a calm inland sea, dotted with icebergs and brash ice but open for sailing.



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Our planned destination was Cape Denison (Commonwealth Bay), the windiest place in the world. Katabatic winds of 150 knots have regularly been recorded here and the Antarctic Pilot logs a staggering 284 days of gales (annual average) with a daily average wind strength at 38 knots (force nine). We were banking on the fact that late December and early January experience fewer katabatics, with a January expectation of “only” 16 days of gales!



Our luck was in as we approached the tiny ice-free boat-harbour at midnight 14 days after departure. At 67 degrees South this is inside the Antarctic Circle, and the evening sun was dipping below the ice plateau to our south. The inlet is about 120 metres wide and 350 metres long, with an anchoring depth of 4 metres in rock and kelp. An icy offshore breeze of only 20 knots formed a crust of ice on gloves and ropes as we paid out 60 metres of chain and five shorelines – Ben wasn’t taking any chances in a place with this reputation.

This bay is the location of the historic Mawson’s Hut, and home to some 20,000 Adele penguins – not to mention dozens of Weddell seals and skuas. The weather held for three days, long enough for us to shoot a dozen rolls of film and two hours of video as we explored the bay, the outlying ice-capped islands and the awe-inspiring ice cliffs along the western coastline. One highlight was the five-hour visit of the ice strengthened cruise ship *Orion* with a hundred tourists. Don and Margie MacIntyre were the expedition leaders and brought some welcome goodies for us as well as a chance to view the inside of Mawson’s Hut with an official guide present.

Then with little warning, the notorious southerly blizzards struck, incarcerating us aboard while gales of up to 90 knots shrieked around us and nearly two tons of ice crusted our topsides and rigging. For nearly five days it blew. Not just a typical Wellington gale but an intense shriek, which transmitted vibrations and harmonics through the entire hull. Secure in her cradle of ropes and chain, *Snow Petrel* pitched in the vicious chop, which had worked up in the mere 150-metre fetch from the head of the inlet. More ominously the ice began to build above decks. At first it was fun, watching the blizzard drift snow into every crevice. After all it was usually over zero degrees in our insulated cabin with its feeble diesel heater. But as sea spray ice steadily crusted up the shrouds, stanchions and mast, and packed ever thicker over the deck and cabin, our motion became more sluggish and the galley sink began to backfill as

A BUDGET SUMMER CRUISE TO THE POLE

the waterline sank. Forays with ice axe wearing full Antarctic apparel only lasted a couple of minutes. In this wind strength it was difficult to breathe and limbs refused to cooperate as we vainly attempted to smash off columns of ice.

As soon as the wind eased below 30 knots we were able to replenish our tanks with water from a frozen lake, and sail east into French Antarctic territory. Our next stopover was the abandoned French base of Port Martin, thirty miles away. No yacht had ever anchored here, and the archipelago of reefs and islets is charted with a single line of soundings (not referenced to GPS datum). Compasses don't function so near to the magnetic pole either, so navigation here is largely by transits, eyeball and sounder. It was a brief overnight stay as the French had requested us not to land and a katabatic was freshening next morning as we crept through the narrow rocky pass between Ile aux Phoques and Ile des Manchots with Matt's sharp eyes posted in the ratlines, sizing up potential anchorages. At least it was a tail wind from here to the Astrolabe Glacier and the main French base of Dumont D'Urville.



Ben had been granted official permission to visit the base but somehow the base hadn't been told of our pending visit, so our VHF call two hours out was a surprise. Not knowing quite what our reception would be, we hoped for perhaps an hour's visit. As soon as paperwork formalities had been dealt with we were ushered straight into a scene from another planet – the Saturday night party (theme Extra-terrestrial). Imagine the surreality of stepping from a world of stark white isolation into a room full of aliens, colour, music and good cheer!

In fact with two severe gales to wait out and a dangerous accumulation of pack ice close inshore, we spent six nights moored on the base pontoon; time to visit the snow petrel colonies and experience all aspects of base life; scientific, logistical and social. The meteorologists - like all 56 people here - could not do enough for us, seeking out weather and ice information. This base (despite recording an annual average of "only" 109 days of gales) holds a world record wind gust of 340 km/hr recorded in 1974.

We feel privileged to have been given such an insight into the functioning of an Antarctic base, seeing a whole new dimension of the Antarctic experience. Conscious of not wanting to be a burden here, we reciprocated by lending a hand where we could and even taking a group for a sail among the surrounding grounded icebergs on the only day the

Continued>

A BUDGET SUMMER CRUISE TO THE POLE

wind eased below gale force. All the while our outside radio contacts like Mike Harris (on *Pangolin 2*) and Scott on *Aurora Australis*) were hard at work assessing the ice situation for us. Our hope was that the pack would blow offshore again and begin to dissipate enough for us to get through once this set of easterly gales went back to the south. Our weather/ice window, when it appeared, gave us 36 hours to sail clear of the pack before the next severe gale. Charming!



A snow petrel in flight. This bird breeds further south than any other species

We left to a huge farewell of cheers and flares, courtesy tricolour fluttering from our spreaders and our course set for the south magnetic pole. Jacques – the base magnetician – had given us the current position of the elusive field centre only 100 miles offshore, and we were hoping to exploit a thin area of pack showing on satellite photos. Once again our luck was in and despite some anxious moments we motored through the worst area that night in only five hours.

The South Magnetic Pole has attracted explorers since Mawson's days, when it was located over land. A small ceremony was called for and once we had ascertained that *yes* our handbearing compasses *did* indeed point straight down, we launched the dan buoy complete with kiwi flag and claimed the pole for New Zealand.

It is great to sail with a team you can utterly depend on. I would go anywhere with Barbara and any of our boys and have confidence we would make it. As we were sailing home, another son, Josh, was en route to the Horn aboard the radical open 60 *Hugo Boss*, only to be dismasted 1800 miles short of the Cape. We felt almost envious of his experience (averaging 12 knots and peaking at 22 knots sailing jury-rigged to Ushuaia). However for us there was still 1500 miles of screaming sixties, furious fifties and roaring forties to re-trace. For my part, cruising as cabin boy instead of skipper for a change was rather relaxing. Ben's thorough approach to weather routing made for a somewhat slower but certainly safer trip home. Skirting west behind the worst lows kept us out of the nastiest seas, and we had some luck in a mixed bag of depressions which led to confused cross-seas rather than the huge greybeards which build up in a sustained set of westerly gales.

Having succeeded in all his other goals, Ben took the cake with a true to schedule two-week voyage home. Two weeks always seems longer on the return voyage. We knew we were nearly home when the smells appeared! For six weeks all potential decaying matter had lain dormant, locked in frozen hibernation. Now the odours began to waft free, and as we sailed into D'Entrecasteaux Channel, the first insects for six weeks homed in on our little red yacht. We were back in the real world again.

Matt Tucker's film of the voyage, *Snow Petrel Down Under*, was an unprecedented sell-out at the Longest Night Film Festival, and is now available on DVD at Kettering's Mermaid Café, and on the web at pangolin.co.nz.

ACE CRC REPORT



It's been another big year for the ACE CRC, as we approach the middle of our term of funding. We started the year with the ambitious and very successful BROKE-West research voyage of over 70 days, had a hectic mid-year period with many of our researchers participating in numerous international conferences, workshops and symposia convened here in Hobart during June and July, underwent an independent external review of our progress during August, followed by preparations for summer fieldwork and further workshops in the later months of the year. It is very pleasing to say that all these, and other, activities of the CRC have been great successes and are feeding into our growing understanding of the role of the Southern Ocean and Antarctica in global and regional climate.

Our major marine science voyage this summer is the SAZ-SENSE voyage to the subantarctic region of the Southern Ocean. We will do detailed, multi-disciplinary process studies of biogeochemistry and primary production in the upper 1000 meters of the ocean to the south east and south west of Tasmania. The cruise is a major activity of our Ocean Control of Carbon Dioxide (CO₂) Program, but also includes joint research with our Climate Variability and Change and Antarctic Marine Ecosystems Programs. The research will improve our understanding of the processes that govern natural sequestration of CO₂ into the ocean and the potential impacts of rising atmospheric concentrations of CO₂ on how the ocean processes CO₂. We also will be doing experiments to identify likely impacts of ocean acidification on plankton that form the base of the Southern Ocean ecosystem. The voyage includes collaborators from several countries and is scheduled to leave Hobart on January 17, 2007, returning February 20.

Early in September, the ACE CRC, Peregrine Adventures and World Wildlife Fund (WWF) co-sponsored an international workshop in Hobart to develop a bioregionalisation of the entire Southern Ocean. The workshop drew together scientists from many countries to tackle what is one of the largest scale bioregionalisation efforts anywhere in the world. The final report from the workshop was launched in Hobart on November 2nd. Copies of the report are available from the ACE CRC, the Australian Government Antarctic Division (AGAD, formerly AAD) or WWF.

The ACE CRC Policy Program will host our third Research Users Forum for government officials in Canberra on November 28th, 2006. The focus of that forum will be on ecosystem research and related management or policy issues in the Southern Ocean, including potential impacts of climate change. Information from three of the ACE CRC science research programs will be presented in relation to current Australian and international policy issues. Similar fora in the last two years have attracted attendances from around 20 different Federal Government departments or agencies and provided a key link between the needs of policy makers and the research being done by the ACE CRC.

Delivery of a sea-ice forecasting system to the Bureau of Meteorology is a contracted milestone for the ACE CRC. Researchers from our Climate Variability and Change Program have been cranking up activity on the job over the last few months and, together with our Research Delivery and Commercial Development Manager, getting the actions in place to ensure effective identification of end-user (BoM, vessel skippers) needs, research priorities and obstacles, and timetables for effective delivery of the product. Developments so far have been encouraging, and field testing of interim rudimentary tools is planned for a winter research cruise in 2007.

Finally, we have a couple of individual achievements to report from recent months. Dr Sandy Zicus has been asked to co-chair the IPY Education, Outreach and Communications Sub-committee and will commence that role in 2007. Dr John Church was recognised by CSIRO for long-standing contributions to national and international science through the award of a prestigious CSIRO Medal on November 15. Dr Church was the only individual researcher (as opposed to teams) awarded a CSIRO Medal this year. Hearty congratulations to both Sandy and John.

On behalf of all of us at the ACE CRC, I wish Ice Breaker's readers a relaxing and restorative festive season and exciting 2007.

Professor Bruce Mapstone
CEO, ACE CRC

ABSORBING CLIMATE CHANGE

ALBEDO: The tendency to reflect rather than absorb light. The Earth's albedo decreases when ice floes melt, because when they reflect less light, Earth absorbs more energy and this increases temperatures.

OCEAN ABSORPTION: The warmer the water, the less CO₂ is absorbed and more remains in the atmosphere

POLAR CALENDAR



8	December	2006	Tasmanian Polar Network meeting. AQIS Macquarie Wharf. 11.00am-1.00pm. Hobart, Tasmania.
6	January	2007	Last day of 'Exploring the South Land' exhibition of early maps of the Australian coastline. Carnegie Gallery, Hobart, Tasmania.
25	February	2007	Last day of 'Sidney Nolan: Antarctic Journey' exhibition of paintings from Nolan's 1964 trip to Antarctica. Mornington Regional Gallery, Victoria. Contact: www.mornpen.vic.gov.au/gallery .
	February	2007	TPN Strategic Planning meeting (to be confirmed).
	March	2007	Launch of the International Polar Year.
15-24	June	2007	Antarctic Midwinter Festival. Hobart, Tasmania
25-29	June	2007	International Association of Antarctic Tour Operators (IAATO) meetings. Hobart, Tasmania.
25-27	September	2007	ISCORD 2007. 8 th International Symposium on Cold Region Development. Tampere, Finland. Contact kaisa.verlainen@ril.fi

INTERNATIONAL POLAR YEAR 2007 - 2008

For information on Australian projects, see www.aad.gov.au

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POLAR PUBLICATIONS



BOOKS

THE INVERTEBRATES OF MACQUARIE ISLAND by Penelope Greenslade, with Insecta by Rieks Dekker van Klíken and Penelope Greenslade. Published by Australian Antarctic division. Price: \$70.00.

- This identification guide covers the taxonomy, biology and ecology of over 300 invertebrates on the island, and is illustrated with photographs, drawings and paintings.

TRENDS IN ANTARCTIC TERRESTRIAL AND LIMNETIC ECOSYSTEMS edited by Dana M Bergstrom, Pete Convey and Ad H.L. Haiskes. Published by Springer. Price: \$99.00.

- Outlines the likely effects of climate change in Antarctica and provides a guide to the management and conservation of affected ecosystems.

DANGEROUS PASSAGE: Issues in the Arctic by Gerard Kenney. Published by Natural Heritage/The Collector's Choice. Price: \$24.95 CAN.

- Describes 100 years of the exploration of a Northwest Passage including Roald Amundsen's *Gjoa* in 1906, Henry Larsen's *St Roch* in the 1940s as well as the 2003 Arctic Climate Impact Assessment on Global Warming and the potential effects of environmental damage such as oil spills.

BEING CARIBOU: Five Months on Foot with an Arctic Herd by Karsten Heuer. Price: \$19.00 US.

- Describes the author's 1500 km trek following a Caribou herd on its annual migration from the Yukon to the Alaskan coastal plain.

BLIZZARD: Race To the Pole by Jasper Rees. Published by BBC Books. Price: \$45.00.

- Covers the 1911 expeditions by Captain Robert Scott and Roald Amundsen and their race to reach the South Pole.

PLANKTON. A Critical Creation by Gustaaf Hallegraf. Published by University of Tasmania. Price: \$50.00.

- Describes the vital significance of plankton and illustrates their diversity with a selection of electron microscope images.

ANTARCTIC FISHES by Mitsuo Fukuchi and Harvey Marchant. Illustrated in the Gyotaku Method by Boshu Nagase. Published by Rosenberg Publishing. Price: \$59.95.

- Produced over five years by Antarctic researchers from seven countries and illustrated by a Japanese master printmaker. Boshu Nagase visited Tasmania and demonstrated his method of printing from frozen fish in 2004, and his original prints are now touring Australia. [Examples of these fish prints were shown on the cover of the March 2004 edition of *Ice Breaker*.]

HEARD ISLAND: Southern Ocean Sentinel edited by Ken Green and Eric Woehler. Published by Surrey Beatty and Sons. Price: \$100.00

- Provides a very comprehensive range of information about Heard Island, including geology, glaciers, vegetation, invertebrates and conservation.

TASMANIA TO THE LETTER by Mike Jenkinson. Published by J.C.P.L. Price: \$29.95.

- Compiled by the author of 'A Little Tassie Fact Book', this book contains over 700 facts, anecdotes and trivia about Tasmanian people, places and events from A to Z, including A for Antarctica and I for Igloo Satellite Cabins.

EXPLORING THE SOUTH LAND by Libby and John McMahon. Published by Maritime Museum of Tasmania. Price: \$29.95.

- Produced to accompany the exhibition currently at the Carnegie Gallery in Hobart, this book documents the collection of early maps of the Australian coastline, opening with a 1587 map of the world by Ortelius and containing maps additional to those exhibited.

FILM:

HAPPY FEET by George Miller. This animated penguin musical is receiving rave reviews and is considered "one of the best directed animated films on record, with brilliantly choreographed and orchestrated musical numbers." An environmental message is also evident with a penguin admiring its 'necklace' of a plastic six-ring can holder, before it causes choking.

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SHIPPING & AIR CALENDAR



1-4	December	2006	L'ASTROLABE		Arrives Hobart, departs for Antarctica.
4-5	December	2006	SPIRIT OF ENDERBY	V1.2	Arrives and departs Dunedin, NZ.
10-11	December	2006	SPIRIT OF ENDERBY	V1.3	Macquarie Island.
12-14	December	2006	AURORA AUSTRALIS	V2	Zhong Shan, deploy CHINARE (China).
13	December	2006	KAP. KHLEBNIKOV	V2.1	Departs Lyttleton, NZ.
14-19	December	2006	AURORA AUSTRALIS	V2	Davis Station.
20-21	December	2006	AURORA AUSTRALIS	V2	Zhong Shan.
24-29	December	2006	L'ASTROLABE		Arrives Hobart, departs for Antarctica.
27	December	2006-	AURORA AUSTRALIS	V2	Casey Station.
2	January	2007			
29	December	2006-	SPIRIT OF ENDERBY	V1.3	Arrives and departs Bluff, NZ.
12	January	2007			
2-3	January	2007	KAP. KHLEBNIKOV	V2.1	Macquarie Island.
6	January	2007	KAP. KHLEBNIKOV	V2.1	Arrives Hobart.
11-14	January	2007	AURORA AUSTRALIS	V2	Arrives and departs Hobart.
13	January	2007	ORION	V2.3	Departs Hobart.
16	January	2007-	AURORA AUSTRALIS	V3	Marine Science.
15	February	2007			
17-18	January	2007	SPIRIT OF ENDERBY	V2.2	Macquarie Island.
24	January	2007	ORION	V2.3	Macquarie Island.
27	January	2007	L'ASTROLABE		Arrives Hobart.
28	January	2007	ORION	V2.3	Arrives and departs Lyttleton, NZ.
9-10	February	2007	SPIRIT OF ENDERBY	V2.2	Arrives and departs Bluff, NZ.
13	February	2007	ORION	V3.1	Macquarie Island.
15-16	February	2007	SPIRIT OF ENDERBY	V3.2	Macquarie Island.
17	February	2007	ORION	V3.1	Arrives and departs Hobart.
17-18	February	2007	L'ASTROLABE		Arrives Hobart, departs for Antarctica.
17-19	February	2007	AURORA AUSTRALIS	V3	Arrives and departs Hobart.
28	February	2007	ORION	V3.3	Macquarie Island.
2-4	March	2007	AURORA AUSTRALIS	V4	Davis Station.
4	March	2007	ORION	V3.3	Arrives Hobart.
5	March	2007	AURORA AUSTRALIS	V4	Zhong Shan.
6-7	March	2007	L'ASTROLABE		Arrives Hobart, departs for Antarctica.
10	March	2007	SPIRIT OF ENDERBY	V3.2	Arrives Bluff, NZ.
16-19	March	2007	AURORA AUSTRALIS	V4	Arrives Hobart, departs for Casey Station.
28-31	March	2007	AURORA AUSTRALIS	V5	Casey Station.
6-12	April	2007	AURORA AUSTRALIS	V5	Macquarie Island.
16	April	2007	AURORA AUSTRALIS	V5	Arrives Hobart. Off hire.

FLIGHT CALENDAR FOR GINGER AND GADGET

14	December	2006	Mawson to Davis	F8	Transfer personnel to V2.
15	December	2006	Davis to Mawson	F7	Transfer from V2.
23	December	2006	Davis to Casey	F9	Transfer for possible V2 sea ice recce's.
5	January	2007	Casey to Davis	F10	Re-position aircraft.
9	January	2007	Davis to Mawson	F11,12	Possible flights to Syowa (Japan).
12	January	2007	Syowa to Mawson	F13	To be confirmed.
12	January	2007	Mawson to Davis	F14	To be confirmed.
1	February	2007	Davis to Mawson	F15	Retrieval of personnel for V4.
1	February	2007	Mawson to Davis	F16	Transfer personnel to V4.
9	February	2007	Davis to Casey	F17,18	Ferry flight preparations.
15	February	2007	Casey to Hobart	F19,20	End of season ferry flights.

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Above: PB121243: Various aircraft used in Antarctica before World War 2. These stamps were part of the Food Chains and Explorers Aircraft set released on 15 August 1973.

Below: PB121240: Anticlockwise from top – First flight by Wilkins 1928; BANZARE's VH-ULD; BGLE's G-ACRU; Ellsworth's Polar Star rescued by Australians 1935.

